

CMR Design Process

This page describes the design process for the CMR.

What is a design?

For the purposes of this page a design is a description of a feature on the CMR including the API, how it works, software components, and architectural details. Design artifacts are captured in wiki pages that contain text and diagrams describing the design. Designs are categorized by whether they are internally or externally facing. External designs contain the details that matter to clients and other users of the CMR such as the API. Internal designs capture code level and architectural details that aren't significant to end users. Often a design will be captured both in an external and an internal design. Putting the lower level details in the internal design avoids cluttering the external design with details.

External designs are created as children of this page: [CMR Designs](#)

Examples of external designs:

- [Updated Tagging Design](#)
- [UMM Versioning Design](#)

Internal designs are created as a child of this page: [CMR Sprint Designs](#)

Examples of internal designs:

- [Updated Tagging Design - Internal](#)
- [UMM Versioning Design - Internal](#)

When is a design created?

Every change on the CMR goes through some design. The act of design is the following:

1. Researching options and thinking about the problem until a solution is obtained
2. Communication of the design and review.

When a change is small or trivial there is no artifact created. The design is discussed between developers and then implemented.

Larger changes require creation of artifacts and a more formal review process. A design artifact is created when there are non-trivial API changes, new features, changes to existing features, or internal architectural changes to the CMR.

Small changes like the addition of a single new string search field on collections would likely not justify a formal design. A larger change like the addition of tagging to the search API would benefit from a design.

What is the purpose of a design?

There are some of the major reasons for engaging in the act of creating a design.

Thought Before Action

Creating a design forces you to think about the *how* before the act of making a change. We don't want to waste time implementing something to find out that the solution won't work.

Identify Different Options

Design is about choices. A design should capture the different options along with their trade offs.

Communication

The most important part of a design is communication. Designs communicate our intentions to users before we implement them. This makes sure that we're implementing something that really solves the users' problems. It also provides documentation for users and developers in the future.

Design Process

This identifies the design process when it is decided that a change will require the creation and review of a design artifact.

Overview

1. Decide whether the design will be external or internal.
2. Create the design.
3. Review the design internally.
4. Schedule the external design review.
5. Hold the external design review.

Decide whether the design will be external or internal.

A design review will be held with external parties if there are impacts to clients, changes in behavior or apis, or the issue was requested by an external party.

Create the design

Designs are captured in the wiki and should use the [ESEC Design Template](#). See the details on that page for the components of a design.

Review the design internally.

External designs are peer reviewed for quality before holding the external design review. An internal design should be presented and reviewed with CMR developers.

Schedule the external design review.

External design reviews should be held during normal business hours. They should be announced at least 3 business days ahead of time to give enough notice for organizations to plan to attend. The design review should be announced with an email to the CMR Client Developers email list, cmr-client-developers@lists.nasa.gov. The email should include:

- Short description of the feature
- Link to the external design in the wiki
- Date, time and webex or Goto meeting details.
- Indicate comments can be made ahead of time in the wiki.

Hold the external design review.

The external design review should walk through the design. Capture any comments and questions. Capture the date and time of the review, attendees, and the result of the review (approved, not approved) in a comment on the page. If the design was approved mark the page approved using the approval widget at the bottom.